



prestige

Condensing Water Boiler



SERVICE TECHNICIAN'S TROUBLE SHOOTING GUIDE

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Introduction

Definitions

WARNING

Indicates a potentially hazardous situation which, if ignored, can result in death, serious injury or substantial property damage.

NOTICE

Indicates special instructions on installation, operation or maintenance, which are important to the equipment/product, but not related to personal injury hazards.

WARNING

This guide is to be used in conjunction with the PRESTIGE Installation and Maintenance manual. Procedures and servicing listed in this manual must be performed by a qualified service technician, installer, service agency or gas supplier. Any procedures or service performed by an unqualified individual or service agency can result in severe personal injury, death or substantial property damage.

Introduction

Introduction

This guide is to be used in conjunction with the Triangle Tube PRESTIGE Boiler Installation and Maintenance Manual.

Good Troubleshooting Practices

Before leaving for the job site:

Check your parts and tools

- Test equipment and tools you will need:
 - Electrical meter that tests both voltage and continuity
 - Temperature gauge or metering device
 - Manometer
 - Combustion Analyzer
 - Standard tools of the trade (wrenches, screwdrivers...)
- Parts to solve most problems
 - Control module
 - Transformer with surge protection
 - Blower with gasket

Review all appropriate manuals before leaving for the job site

At the job site:

- Clarify problem
- Have the PRESTIGE manual and any other wiring, zone control or piping diagrams, or installation guides readily available.

REMEMBER

Follow the Troubleshooting Guide step by step, always double checking your results. Skipping steps or not completing steps can lead to wrong conclusions, repeated visits to the job site, unhappy customers and unnecessary warranty claims.

Servicing Tips and Instructions

WARNING

Label all wires and wire connections prior to disconnecting when servicing any boiler controls. Wiring errors can cause improper and dangerous operation. Always disconnect the power supply to the boiler before servicing. Failure to comply could result in severe personal injury, death or substantial property damage.

WARNING

Never bypass (jumper) any boiler control or device except for momentary testing when troubleshooting the boiler as outlined in this guide, severe personal injury, death or substantial property damage can result.

Initial Troubleshooting Checks

- Ensure all wire connectors to the control module and sensors are securely connected.
- Ensure the maximum gas supply pressure does not exceed 13" w.c during flow or no flow conditions.
- Ensure the gas supply pressure is a minimum 5" w.c during flow conditions (burner firing on all gas appliances).

Control Module Fuses

NOTICE

The control module contains 2 internal replaceable fuses. Ensure the fuses are in working condition prior to replacing the control module or any boiler component. If one of the fuses has blown, it will prevent the control module and/or boiler components from operating properly.

To check or replace the control module fuses:

1. Disconnect the external power supply to the boiler.
2. Remove the front jacket panel of the boiler by removing the thumb screw along the top edge.
3. Remove the electrical quick connects on the control and the black plastic housing cover off the control module. Use care not to damage the cover when removing it.
4. Inspect both fuses to determine if blown.
5. The control module is supplied from the factory with 2 spare fuses, a 5 amp fast acting fuse and a 4 amp slow acting fuse, attached to the control module cover.
6. When replacing the fuses ensure the amp rating and type of the fuse matches the replacement fuse. Reference Fig. 1, page 4 for amperage and location of the fuses.

WARNING

Do not bypass any fuse with a jumper. Do not replace any fuse with a fuse that is not specified. Failure to comply could result in severe personal injury, death or substantial property damage.

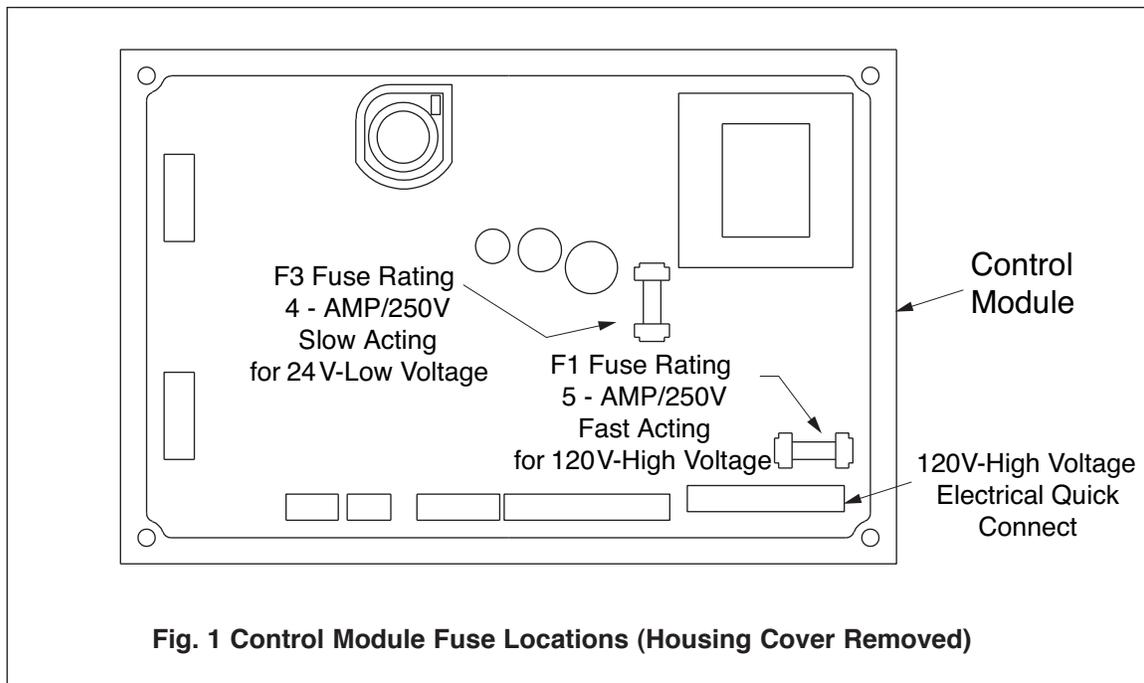
7. Re-install the control module cover, electrical quick connects and the front jacket panel when completed.

Servicing Tips and Instructions

8. Reconnect the external power supply to the boiler and perform the verification of operation steps as outline in the Prestige Installation Manual.

WARNING

After completing any servicing of the boiler verify proper operation of the boiler. Steps to verify proper operation are outlined in the Start-Up Preparation in the PRESTIGE Installation manual. Failure to comply could result in severe personal injury, death or substantial property damage.



Control Module Display - General

Standby Mode

After the boiler is turned on, the control panel will display STANDBY mode as shown in the figure above.

This is the standard mode for the PRESTIGE. The control automatically returns to this mode after 20 minutes if no keys have been pressed on the display. Any parameters that were modified are then enabled.

The first character shows (on the left side of the display) the current status of the boiler depending on the condition of both the boiler and the burner. The last 3 characters indicate the start temperature. See page 8 for additional information.

If the burner is blocked due to a “soft” lockout, the display alternates between a 9 followed by the boiler outlet temperature and “b” with a two digit error code. See page 9 - 13 for detailed information on the corrective and preventive actions for the soft lockouts.

Display	Boiler function
	Internal check
	Test function: Burner on, high fire mode
	Test function: Burner on, low fire mode

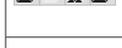
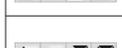
TO TEMPORARY PLACE THE BURNER INTO HIGH FIRE MODE: press the **MODE** button with **+** button simultaneously and hold for 2 or 3 seconds.

TO TEMPORARY PLACE THE BURNER INTO LOW FIRE MODE: press the **MODE** button with **-** button simultaneously and hold for 2 or 3 seconds.

NOTICE

The control module will maintain the fixed firing rate for approximately 10 minutes before defaulting to normal operating conditions.

Press the **+** and **-** button simultaneously to deactivate the high or low fire mode.

Display	Boiler function
	STANDBY, no demand for heat
	Fan prepurge or post purge cycle
	Ignition sequence
	Burner ON for space heating (CH)
	Burner ON for domestic hot water (DHW)
	Pre-check for air flow prior to prepurge cycle
	Burner OFF due to reaching temperature setpoint
	Space Heating (CH) post pump cycle
	Domestic hot water (DHW) post pump cycle
	Burner blocked:
	Supply temperature too high (202°F) . Burner will remain OFF until temperature drops below 200°F
	Return temperature too high (202°F). Burner will remain OFF until temperature drops below 200°F
	Return temperature is higher than supply temperature. Burner will remain OFF until corrected.
	Supply temperature increased too quickly. Burner will remain OFF for a 10 minute period. Burner will recycle, increasing waiting period 1 minute for a max. 15 minutes
	Factory supplied LWCO device or external limit (terminals 15 & 16) is OPEN. Burner off for 150 seconds, auto reset.
	No blower signal
	Blower signal present with no demand, Burner will remain OFF until condition terminates
	Temperature difference between the supply and return is more than 72°F. Burner will remain OFF for 150 seconds. Burner will recycle increasing waiting period 1 minute for a max. 20 cycle.
	Indirect water heater temperature sensor is short-circuited. Burner OFF until corrected.
	Flue temperature sensor is short-circuited. Burner OFF until corrected
	Indirect water heater temperature sensor is “open” or disconnected. Burner OFF until corrected.
	Flue temperature sensor is “open” Burner OFF until corrected.
	Flue temperature greater than 240°F but less than 250°F. Burner off for 150 seconds
	Wait for the blower to start
	Power frequency deviation
	Flame current signal lost

Control Module Display - General

Parameter Mode

To access PARAMETER mode when the system is in STANDBY mode, press the MODE button once.

Key: Display



Pressing MODE once

To scroll through the list of parameters, simply press the “STEP” button. The First digit is the parameter number followed by the parameter value. To modify a parameter value, use the + or - keys. Then press “STORE” to save the value you just changed. The display flashes once to confirm the data has been saved.

To activate the parameters you changed, press RESET. However, if you do not press a key, the system returns to STANDBY mode after 20 minutes and automatically enables the changes.

Key:	Display	Description of parameters
 STEP		Domestic Hot Water Setting (See Note 1)
 STEP		DHW Application Selection (See Note 2)
 STEP		CH Application Selection (See Note 3)
 STEP		CH Maximum Boiler Operating Setpoint

Note 1: This parameter is factory set to 140°F. It is important to note the control adds 46°F to this setting, therefore the actual domestic hot water boiler setpoint is 140°F + 46°F = 186°F.

Note 2: This parameter should not be changed from the factory setting of 01. The performance of the DHW (Domestic Hot Water Heating) will be affected and can become unreliable.

Note 3: This parameter should not be changed from the factory setting of 01. The performance of the CH (Central/Space Heating) will be affected and can become unreliable.

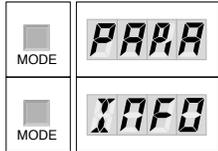
Start-Up Procedures

Accessing Boiler Information

Information mode

To switch from STANDBY mode to Information mode, press MODE twice.

Key: Display



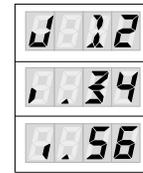
Pressing MODE once

Pressing MODE twice

Press STEP until the system displays the information you need. The decimal point located behind the first position flashes to indicate that the boiler is in INFO mode.

NOTICE

The ignition counters and burner hours are split into three two digit numbers.
For example:

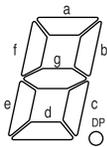


Write the numbers down from left to right to arrive at 123,456 CH ignitions.

NOTICE

In the INFO Mode a temperature reading of -22 typically indicates an “open” circuit. A temperature reading of 240 typically indicates a short-circuit.

Information Mode Items



Display Digit Segments

Item	Value
1	Supply Water Temperature °F
2	Return Water Temperature °F
3	DHW Water Temperature °F (Optional)
4	Outdoor Temperature °F (Optional)
5	Flue Temperature °F
6	Boiler Setpoint °F
7	Rate of Increase of Supply Water Temperature °F/Sec.
8	Rate of Increase of Return Water Temperature °F/Sec.
9	Rate of Increase of DHW Water Temperature °F/Sec.
A	Not Used
B	Not Used
C	Not Used
D	Not Used
E	Ionization Current in micro-ampere
F	Analog Input Voltage
G	Not Used
H	MCBA Internal Temperature °F
I	CH Ignition Counter (100 thousands / 10 thousands)
Seg. e	CH Ignition Counter (thousands / hundreds)
Seg. c	CH Ignition Counter (ten / ones)
J	CH Ignition Hours (100 thousands / 10 thousands)
Seg. e	CH Ignition Hours (thousands / hundreds)
Seg. c	CH Ignition Hours (ten / ones)
L	DHW Ignition Counter (100 thousands / 10 thousands)
Seg. e	DHW Ignition Counter (thousands / hundreds)
Seg. c	DHW Ignition Counter (ten / ones)
N	DHW Burner Counter (100 thousands / 10 thousands)
Seg. e	DHW Burner Counter (thousands / hundreds)
Seg. c	DHW Burner Counter (ten / ones)

Control Module Display - General

Error Hard Lockout Mode

If a serious fault occurs, the system enters a hard lockout condition which requires a manual reset by pressing the RESET Button. A hard lockout is indicated by displaying an E for the first digit, followed by the error code.

For detailed information on the corrective and preventive actions for the hard lockout, see pages 14-19.

CAUTION

The boiler freeze protection feature is disabled during a Hard Lockout, however the CH circulator will operate.

CAUTION

During a hard lockout or low water condition the boiler will not re-start without service. If the heating system is left unattended in cold weather appropriate safeguards or alarms should be installed to prevent property damage.

Display	Hard Lockout
E 00	Flame detected prior to burner startup
E 02	Failed ignition after 5 attempts
E 03	Gas valve harness not properly connected
E 04	Power supply lost after lockout occurred
E 05	Internal control failure
E 06	Internal control failure
E 07	Internal control failure
E 08	Internal control failure
E 09	Internal control failure
E 11	Internal control failure
E 12	External limit (terminals 13 & 14) is OPEN
E 13	Internal control failure
E 14	Internal control failure
E 15	Internal control failure
E 16	Internal control failure
E 17	Internal control failure
E 18	Supply Temperature exceeds 212°F
E 19	Return Temperature exceeds 212°F
E 25	Supply Temperature increased too rapidly
E 28	No blower signal present
E 29	Blower signal does not reset to zero
E 31	Supply Temperature sensor is short circuited
E 32	Return Temperature sensor is short circuited
E 35	Flue Temperature sensor is short circuit
E 36	Supply Temperature sensor is OPEN
E 37	Return Temperature sensor is OPEN
E 40	Flue Temperature sensor is OPEN
E 44	Internal control failure
E 52	Flue Temperature exceeds 250° F
E 60	Internal control error - failure to read parameters
E 61	Internal control failure
E 65	Inadequate power supply to the fan
E113	Invalid power frequency
E115	Internal control failure
E122	Supply or Return Temperature sensor drift
E123	Supply or Return Temperature failure
E124	Supply or Return Temperature not changing

Prestige Control Module Display

Boiler control display is blank

- Check for 120 volts at terminals L and N of the 120V terminal strip
 - If no power is measured check the external power supply, external fuse or breaker.
- Check the internal fuse F1 by locating the control module and removing the black housing. The internal fuse F1 is located in the right corner of the control module near the 120V high voltage electrical quick connect on the control as shown in Fig. 1, page 4. See Servicing Tips and Instructions, page 3, for accessing the internal fuses of the control module.
 - Disconnect electrical supply power to the boiler and remove the F1 fuse from the MCBA. Check continuity across the fuse. If continuity is not present, the fuse has blown, replace the fuse with a 5 amp/250V fast acting fuse. Check the wiring for possible causes for the fuse to blow.
- Check external wiring at 120V terminal strip and boiler internal wiring, ensure all wiring is properly connected, in good condition and all control module and boiler connections are secure.
 - Correct/replace any mis-wiring or wiring components if needed. If problem continues replace the control module.

Boiler display shows UI.25 or UI.22

- Check transformer connections
- Check the internal fuse F3 by locating the control module and removing the black housing. The internal fuse F3 is located in the center of the control module as shown in Fig. 1 page 4.

See servicing tips and instructions, page 3, for accessing the internal fuses of the control module.

- If fuse F3 has blown, replace the fuse with a 4-amp/250V slow acting fuse. Check external boiler wiring for external source of 24V backfeed.

Boiler display shows a 0 for the first digit on the left followed by 2 or 3 digits (boiler temperature)

- Check to see if room and DHW thermostats are satisfied.
 - If the thermostats are satisfied the boiler is off due to no call for heat. Turn up a thermostat and the boiler should begin ignition sequence.
- If the room thermostat or DHW thermostat is calling for heat and the boiler is not firing and the boiler is below the maximum operating temperature.
 - Check and verify Parameters 2 and 3 are correct as outlined on page 6. Both parameters should be set as "01", which turns DHW and CH modes ON.
 - Temporarily jump low voltage terminals 7 and 8 on the 24V terminal strip. If boiler operates check the room thermostat wiring and thermostat control. Replace as needed. Remove jumper when completed.
 - Temporarily jump low voltage terminals 11 and 12 on the 24V terminal strip. If boiler operates check the DHW thermostat wiring and thermostat control. Replace as needed. Remove jumper when completed.
 - Disconnect power to the boiler. Check all wiring and wiring connections and compare to the wiring diagram. Ensure all wiring and wiring connection are in good condition and secure. If necessary, replace complete wiring harness.
 - Check for 24 volts across the control module internal fuse F3, which is located toward the middle of the control and positioned vertically see Fig. 1 page 4. If necessary replace the fuse. See Servicing Tips and Instructions, page 3, for accessing the internal fuses of the control module.
 - Check Item 6 in the INFO mode. If Item 6 shows a reading of 32, remove the air inlet tube from venturi on the Blower/Burner Assembly. Looking into the inlet of the venturi, check for any rotation of the blower impellar. If the blower impellar is rotating, replace the blower.
 - If all the above steps fail to resolve the problem, replace the control module.

Prestige Control Module Display

Boiler display shows a number of 1 to 8 for the first digit on the left followed by 2 or 3 digits (boiler temperature)

- The boiler is in normal operating mode. Reference the boiler installation manual for detailed explanation of the boiler operation.

Boiler Display shows **FUSE**

- Check and ensure the transformer is properly connected to the MCBA module.
 - Check and ensure 24v are measured at the transformer when properly connected to the MCBA module. If necessary, replace the transformer.
- Check the internal fuse F3 by locating the control module and removing the black housing. The internal fuse F3 is located in the center of the control module as shown in Fig. 1 page 4.

See servicing tips and instructions, page 3, for accessing the internal fuses of the control module.

- If fuse F3 has blown, replace the fuse with a 4-amp/250v slow acting fuse. Check external boiler wiring for external source of 24v backfeed.

Soft Lockout Error Code

The boiler will display Soft Lockouts with a flashing “9”, then “b” as the first digit on the left of the display followed by a steady two digit code. The boiler will automatically reset a Soft Lockout once the condition has been corrected and returned to standard operating condition.

Code	Error Condition	Correcting Error Condition
b- 18	High Temperature Limit, Boiler Supply	<p>If the primary boiler supply water temperature exceeds 200°F, the burner will shut down until the supply temperature drops below 200°F. The boiler circulator will continue operating.</p> <ul style="list-style-type: none"> • This problem should only occur if the heat load demand is less than the low input-firing rate of the boiler, typically found on small single heat zones and where there is a potential flow issue. <ul style="list-style-type: none"> - Verify the boiler and heating system are filled with water and the LWCO is operating properly. - Ensure the boiler and heating system have been properly purged and there is no entrapped air. - Inspect and verify heating system piping and its components. Ensure piping is per the recommendations given in the Prestige Installation Manual or per other approved/recognized designed configurations. • Ensure system and/or zone circulators are operating properly • Use a temperature-metering device to measure the supply water temperature leaving the boiler. Compare this measured temperature with the display temperature (INFO Mode display, “1” is the first digit on the left followed by the temperature.) <ul style="list-style-type: none"> - Replace the supply temperature sensor if the temperature comparison is largely varied by more than 10°F.
b- 19	High Temperature Limit, Boiler Return	<p>If the primary boiler return water temperature exceeds 200°F, the burner will shut down until the return temperature drops below 200°F. The boiler circulator will continue operating.</p> <ul style="list-style-type: none"> • This problem rarely occurs unless the boiler experiences an Error Code 18 and the system is charged with a water temperature in excess of 200°F <ul style="list-style-type: none"> - Verify the boiler and heating system are filled with water and the LWCO is operating properly. - Ensure the boiler and heating system have been properly purged and there is no entrapped air. - Inspect and verify heating system piping and its components. Ensure piping is per the recommendations given in the Prestige Installation Manual or per other approved/recognized designed configurations. - Ensure the boiler piping is correct and the water flow is not reversed or pipes are cross connected. • Use a temperature-metering device to measure the return water temperature entering the boiler. Compare this measured temperature with the display temperature (INFO Mode display, “2” is the first digit on the left followed by the temperature.) <ul style="list-style-type: none"> - Replace the return temperature sensor if the temperature comparison is largely varied by more than 10°F.

Soft Lockout Error Code

Code	Error Condition	Correcting Error Condition
b- 24	High Temperature Limit, Boiler Supply and Return	<p>If the primary boiler return water temperature exceeds the boiler supply temperature, the burner will shut down until the boiler return temperature drops below the boiler supply temperature. The boiler circulator will continue operating.</p> <ul style="list-style-type: none"> • The following items should be checked: <ul style="list-style-type: none"> - Verify the boiler and heating system are filled with water and the LWCO is operating properly. - Ensure the boiler and heating system have been properly purged and there is no entrapped air. - Inspect and verify heating system piping and its components. Ensure piping is per the recommendations given in the Prestige Installation Manual or per other approved/recognized designed configurations. - Ensure the boiler piping is correct and the water flow is not reversed or pipes are cross connected. • Use a temperature-metering device to measure the supply water temperature leaving the boiler. Compare this measured temperature with the display temperature (INFO Mode display, “1” is the first digit followed by the temperature.) <ul style="list-style-type: none"> - Replace the supply temperature sensor if the temperature comparison is largely varied by more than 10°F. • Use a temperature-metering device to measure the return water temperature entering the boiler. Compare this measured temperature with the display temperature (INFO Mode display, “2” is the first digit followed by the temperature.) <ul style="list-style-type: none"> - Replace the return temperature sensor if the temperature comparison is largely varied by more than 10°F.
b- 25	High Temperature Limit, Boiler Supply	<p>If the primary boiler supply water temperature rate of increase is deemed too quick, the burner will shut down for a 10 minute period. If the condition is not corrected during the next cycle, the burner shut down period of 10 minutes will increase an additional minute. The boiler will continue for 5 cycles until a “hard” lockout will occur.</p> <ul style="list-style-type: none"> • This problem will occur if the flow rate on the boiler is too low or if there is no flow. Check for the following conditions: <ul style="list-style-type: none"> - Verify the boiler and heating system are filled with water and the LWCO is operating properly. - Ensure the boiler and heating system have been properly purged and there is no entrapped air. - Inspect and verify heating system piping and its components. Ensure piping is per the recommendations given in the Installation Manual or per other approved/recognized designed configurations. • Verify pump is properly sized for the flow rate required based on the head loss of the system. Reference the installation manual for pump curves and boiler pressure drop. Consult the circulator manufacturer for additional pump curve data or for assistance in sizing a circulator properly. • Verify and ensure the boiler space heating CH circulator is operating properly. <ul style="list-style-type: none"> - Check and verify 120V at the circulator wiring in the circulator junction box. If no voltage is measured, check circulator wiring and connections.

Soft Lockout Error Code

Code	Error Condition	Correcting Error Condition
b- 25	High Temperature Limit, Boiler Supply (continued)	<ul style="list-style-type: none"> - Check and verify 120V at the 120V terminal strip along terminals 1 and 2 inside the boiler enclosure. Check circulator wire harness from the boiler to the circulator if necessary. • Verify and ensure the external DHW circulator is operating properly. <ul style="list-style-type: none"> - Check and verify 120V at the circulator wiring in the circulator junction box. If no voltage is measured, check circulator wiring and connections. - Check and verify 120V at the 120V terminal strip, terminals 4 and 5 inside the boiler enclosure. Check circulator wire harness from the boiler to the circulator if necessary.
b- 26	LWCO Device	<p>If the LWCO device is determined to be open by the control module the boiler will remain in a shut down mode until the condition is corrected. Once the condition is corrected the boiler will remain in the shut down mode for an additional 150 seconds before startup.</p> <ul style="list-style-type: none"> - Check the pressure gauge on the boiler and ensure the system is at minimum 10 psig. - Ensure proper operation of the boiler make up system and fill valve. • Check continuity across the LWCO terminals for closed contacts if the boiler system pressure gauge reads 10 psig or greater. <ul style="list-style-type: none"> - Replace the LWCO device if the continuity shows an open circuit and the system pressure is 10 psig or greater. - Check the wiring and contacts from the LWCO to the control module terminals if the continuity check shows a close circuit.
b- 28	Blower Assembly	<p>Will occur if during the ignition sequence the blower does not start. The boiler display will indicate a status code of 5 during the ignition sequence.</p> <ul style="list-style-type: none"> • Disconnect the connector at the blower. Restart the boiler sequence and check for 35Vdc at the connector between the black and white wires (pin 1 & 5). <ul style="list-style-type: none"> - If 35Vdc is present at the connector, reconnect the wire harness to the blower and ensure a secure connection. Replace the blower assembly if problem is not resolved. - If 35Vdc is not present at the connector, inspect the wiring harness. Replace the control module if inspection of the wire harness replacement does not resolve the problem.
b- 29	Blower Assembly	<p>The control module is detecting the blower in operation when it should not be.</p> <ul style="list-style-type: none"> • Check and verify the wiring from the blower to the control module is correct as shown in the appliance wiring schematic, page 25 and 26. <ul style="list-style-type: none"> - Replace the blower if inspection of the wiring harness does not resolve the problem. Replace control module if blower replacement does not resolve the problem.

Soft Lockout Error Code

Code	Error Condition	Correcting Error Condition
b- 30	High Temperature Limit, Boiler Supply and Return Temperature Differential is greater than 72°F	<p>If the primary boiler water temperature differential between the supply and the return is too high (greater than 72°F), the burner will shut down for a 150 second period. The circulator will continue circulating until the start of the next cycle. If the condition is not corrected during the next cycle, the burner shut down period of 150 seconds will increase an additional minute. The boiler will continue for 22 cycles until a “hard “ lockout will occur.</p> <ul style="list-style-type: none"> • This problem will occur if the flow rate and demand on the boiler is too low. Check for the following conditions: <ul style="list-style-type: none"> - Verify the boiler and heating system are filled with water and the LWCO is operating properly. - Ensure the boiler and heating system have been properly purged and there is no entrapped air. - Inspect and verify heating system piping and its components. Ensure piping is per the recommendations given in the Installation Manual or per other approved/recognized designed configurations. - Ensure the piping system pressure drop is within the flow rate parameters of the circulator. • Verify and ensure the boiler space heating CH circulator is operating properly. <ul style="list-style-type: none"> - Check and verify 120V at the circulator wiring in the circulator junction box. If no voltage is measured, check circulator wiring and connections. - Check and verify 120V at the 120V Terminal strip terminals 1 and 2 inside the boiler enclosure. Check circulator wire harness if voltage is measured at the control module. • Verify and ensure the external DHW circulator is operating properly. <ul style="list-style-type: none"> - Check and verify 120V at the circulator wiring in the circulator junction box. If no voltage is measured, check circulator wiring and connections. - Check and verify 120V at the 120V terminal strip between terminals 4 and 5 inside the boiler enclosure. Check circulator wire harness and replace if needed if voltage is measured at the control module.
b- 33	Indirect Water Heater Temperature Sensor	<p>The control module detects a short or jumped out condition of the indirect water heater temperature sensor. The burner will remain off until the condition is corrected.</p> <ul style="list-style-type: none"> • Review parameter setting for DWH operating signal selection. Reference Prestige Control Supplement for proper selection. • Inspect the DHW temperature sensor and wiring, ensure it is secure and in good condition. <ul style="list-style-type: none"> - Replace the sensor if problem persists.
b- 35	Flue Temperature Sensor	<p>The control module detects a short or jumped out condition of the flue temperature sensor. This code will also appear briefly prior to a “hard” lockout if the flue gas temperature exceeds 250°F. The burner will remain off until the condition is corrected.</p> <ul style="list-style-type: none"> • Inspect the flue temperature sensor and wiring, ensure it is secure and in good condition.

Soft Lockout Error Code

Code	Error Condition	Correcting Error Condition
b- 38	Indirect Water Heater Temperature Sensor	<p>The control module detects the indirect water heater temperature sensor as “open” which is typically an improper or missing connection of the sensor.</p> <ul style="list-style-type: none"> - Review parameter setting for DHW operating signal selection. Reference Prestige Control Supplement for proper selection. • Inspect the DHW temperature sensor and wiring, ensure it is secure and in good condition. <ul style="list-style-type: none"> - Replace the sensor if problem persists.
b- 40	Flue Temperature Sensor	<p>The control module detects the flue temperature sensor as “open”, which is typically an improper or missing connection at the sensor.</p> <ul style="list-style-type: none"> • Inspect the flue temperature sensor and wiring, ensure it is secure and in good condition. <ul style="list-style-type: none"> - Replace the sensor if problem persists.
b- 52	Flue Temperature Sensor	<p>The control module detects the flue temperature greater than 241°F, less than 250°F. Burner off for 150 seconds.</p> <ul style="list-style-type: none"> • This is an indication the heat exchanger flue ways may need cleaning. Reference the Maintenance section of the installation manual for procedures on cleaning the flue side of the heat exchanger. • Isolate the boiler from the boiler system piping and drain the boiler heat exchanger. Flush the boiler heat exchanger several times, checking the discharge water for signs of scale or sediment. • Inspect the flue temperature sensor and wiring, ensure it is secure and in good condition, replace as needed. <ul style="list-style-type: none"> - Replace the sensor if problem persists.
b- 65	Blower Assembly	<p>The control module does not detect proper blower operation during a call for heat.</p> <ul style="list-style-type: none"> • Disconnect the 35Vdc connector at the blower. Restart the boiler sequence and check for 35Vdc at the connector between the black and white wires (pin 1 & 5). <ul style="list-style-type: none"> - If 35Vdc is present at the connector, reconnect the wire harness to the blower and ensure a secure connection. Replace the blower assembly if problem is not resolved. - If 135Vdc is not present at the connector, inspect the wiring harness. Replace the control module if the wire harness inspection does not resolve the problem.

Hard Lockout Error Code

The boiler will display a Hard Lockout with an **E** as the first digit on the left of display followed by a two-digit code. The boiler must be manually reset by pressing the RESET button on the display once the condition has been corrected. A Hard Lockout will occur when boiler conditions, that are considered critical in terms of safety, are not met or exceeded.

Code	Error Condition	Correcting Error Condition
E- 00	Flame Detection Error	<p>This error will occur if the control module detects a burner flame (flame signal) prior to the ignition sequence.</p> <ul style="list-style-type: none"> • This problem maybe related to the burner operating too hot due to poor combustion. The flame pattern and combustion should be tested at both high fire and low fire inputs. Reference page 5 regarding high and low fire input procedures. Reference page 20 for combustion requirements. <ul style="list-style-type: none"> - If the application is propane, check and verify the propane orifice for proper size (reference page 20 for orifice sizes). Ensure the propane orifice is properly seated in the gas valve gasket. • Inspect the burner head through the burner sight port during shut down sequence of the boiler. <ul style="list-style-type: none"> - If the flame remains after the shut down sequence, the gas valve maybe leaking. Check and verify the gas pressure is less than 13 inches w.c. If the gas pressure is less than 13 inches w.c., replace the gas valve.
E- 02	Failed Ignition Error	<p>This error will occur if the boiler has failed to establish flame detection during the ignition sequence. The lockout will occur after 5 tries.</p> <ul style="list-style-type: none"> • If no ignition spark occurs during the ignition sequence: <ul style="list-style-type: none"> - Check the ignition electrode cable, the electrode boot connector and all connections, ensure all are in good condition and tightly secure. Replace cable if damaged. - Inspect the insulation of the electrode cable and the electrode igniter; ensure there is no damage. Replace cable or igniter as needed. - Check the ground lead for a secure connection from the control module ground to the burner mounting plate. Use a ground continuity check to verify a good ground. • If there is an ignition spark during the ignition sequence, but no flame: <ul style="list-style-type: none"> - Verify the manual shutoff valve on the gas supply piping is in the OPEN position. - Check and verify the gas pressure at the inlet of the valve during ignition sequence. Ensure the gas pressure maintains a minimum 5 inches w.c during ignition sequence. Note: All gas appliances within the building should be operating during this measurement. - Check and verify all gas piping is free of obstructions and has been purged of all air. - Check the gas meter for indications of gas flow during the ignition sequence. - Remove the ignition electrode to inspect for damage. Clean any white oxides off the electrode if necessary. Replace the electrode if damaged or will not clean. - Replace the gas valve rectifier cable. - Remove and inspect the gas valve and venturi gas ports. Ensure ports are free of obstructions. - If the above items have been completed and verified, replace the gas valve.

Hard Lockout Error Code

Code	Error Condition	Correcting Error Condition
E- 02	Failed Ignition Error (continued)	<ul style="list-style-type: none"> Flame is established during the ignition sequence, but not maintained. This problem may be due to low flame signal detection by the control module. <ul style="list-style-type: none"> Inspect the flame pattern on the burner head during high and low fire inputs. Inspect and clean the burner head if necessary. Replace the burner head if damage. Reference page 5 regarding high and low fire input procedures. Check the input rate of the boiler at the gas meter during high fire input. If the gas meter measured rate is not at or below 15% of the boiler rating, replace the gas valve. <p>Note: The length of venting and combustion air piping will affect the measure boiler rating.</p> <ul style="list-style-type: none"> Check the ground lead for a secure connection from the control module ground to the burner mounting plate. Use a ground continuity check to verify a good ground. Remove the ignition electrode to inspect for damage. Clean any white oxides off the electrode if necessary. Replace the electrode if damaged or will not clean.
E- 03	Gas Valve Harness	<ul style="list-style-type: none"> Ensure gas valve rectifier cable is properly connected to the gas valve and secured. <p>Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the rectifier cable.</p>
E- 04	Loss of Power	<p>This error will occur if power to the boiler is lost after a lockout has occurred. The boiler must be manually reset and the original lockout code will be lost.</p> <ul style="list-style-type: none"> This error will also occur if the service technician tries to reset a hard lockout by turning the boiler OFF and then ON as an attempt to reset the boiler. Verify polarity and proper ground on incoming 120V power connections This error may occur in rare cases if there is power interruption, surge or “Dirty” voltage. An relay kit is available and may be installed on the incoming voltage to the boiler. THIS error may occur due to a short in the ignition cable, replace the ignition cable
E- 05	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 06	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 07	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 08	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 09	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.

Hard Lockout Error Code

Code	Error Condition	Correcting Error Condition
E- 11	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 12	External Limit Lockout	<ul style="list-style-type: none"> • An external limit control connected at the 24V terminal strip, between terminals 13 and 14 is open, breaking the circuit. Determine reason for the limit to be open and correct condition. <ul style="list-style-type: none"> - If no external limit is used, then check and verify connection of the factory applied jumper across terminals 13 and 14. - If the external limit is closed, then check the boiler internal wiring connections and repair or replace if necessary. Remove the external limit and apply a temporary jumper across terminals 13 and 14 and verify operation.
E- 13	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 14	Internal Failure	<p>This error may be due to a short or voltage feedback in the 24V circuit.</p> <ul style="list-style-type: none"> • Check the wiring of the outdoor sensor <ul style="list-style-type: none"> - Ensure the wiring is not locate near hifh voltage wiring. Relocate the wiring or use shielded cable. • Check for backfeed of voltage to terminals 7 and 8 and terminals 11 and 12 in the boiler enclosure. <ul style="list-style-type: none"> - Remove all field wiring from the boiler's and reset the boiler control module. -Initiate a call for heat external to the boiler and check for voltage on field wiring ro terminals 7 and 8 (CH heating) and terminals 11 and 12 (DHW heating). -Check for water damage or moisture on the 24V terminal strip. <p>Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.</p>
E- 15	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 16	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 17	Internal Failure	Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.
E- 18	High Temperature Limit, Supply Temperature	<p>This error will occur if the boiler supply water temperature exceeds 212°F.</p> <ul style="list-style-type: none"> • The following items should be checked: <ul style="list-style-type: none"> - Verify the boiler and heating system are filled with water and the LWCO is operating properly. - Ensure the boiler and heating system have been properly purged and there is no entrapped air. - Inspect and verify heating system piping and its components. Ensure piping is per the recommendations given in the Installation Manual or per other approved/recognized designed configurations.

Hard Lockout Error Code

Code	Error Condition	Correcting Error Condition
E- 18	High Temperature Limit, Supply Temperature	<ul style="list-style-type: none"> • Use a temperature-metering device to measure the supply water temperature leaving the boiler. Compare this measured temperature with the display temperature (INFO Mode display, “1” is the first digit followed by the temperature.) <ul style="list-style-type: none"> - Replace the supply temperature sensor if the temperature comparison is largely varied by more than 10°F.
E- 19	High Temperature Limit, Return Temperature	<p>This error will occur if the boiler return water temperature exceeds 212°F.</p> <ul style="list-style-type: none"> • This problem rarely occurs unless the boiler experiences an Error Code 18 and the system is charged with a water temperature in excess of 212°F. The following items should be checked: <ul style="list-style-type: none"> - Verify the boiler and heating system are filled with water and the LWCO is operating properly. - Ensure the boiler and heating system have been properly purged and there is no entrapped air. - Inspect and verify heating system piping and its components. Ensure piping is per the recommendations given in the Installation Manual or per other approved/recognized designed configurations. - Ensure the boiler piping is correct and the water flow is not reversed or pipes are cross-connected. • Use a temperature-metering device to measure the return water temperature leaving the boiler. Compare this measured temperature with the display temperature (INFO Mode display, “2” is the first digit followed by the temperature.) <ul style="list-style-type: none"> - Replace the return temperature sensor if the temperature comparison is largely varied by more than 10°F.
E- 25	High Temperature Limit, Supply Temperature rate of increase	<p>This error will occur if the boiler supply water temperature rate of increase is deemed too rapid. The control module will display a soft lockout of b_25 and initiate a recycle sequence. After 5 cycles the boiler will go into a hard lockout.</p> <ul style="list-style-type: none"> • This problem will occur if the flow rate and demand load on the boiler are too low. Check for the following conditions: <ul style="list-style-type: none"> - Verify the boiler and heating system are filled with water and the LWCO is operating properly. - Ensure the boiler and heating system have been properly purged and there is no entrapped air. - Inspect and verify heating system piping and its components. Ensure piping is per the recommendations given in the Installation Manual or per other approved/recognized designed configurations. • Verify and ensure the boiler central heating CH circulator is operating properly. <ul style="list-style-type: none"> - Check and verify 120V at the circulator wiring in the circulator junction box. If no voltage is measured, check circulator wiring and connections. - Check and verify 120V at the 120v terminal strip terminals 1 and 2 inside the boiler enclosure. Check circulator wire harness and replace if needed if voltage is measured at the control module. • Verify and ensure the external DHW circulator is operating properly. <ul style="list-style-type: none"> - Check and verify 120V at the circulator wiring in the circulator junction box. If no voltage is measured, check circulator wiring and connections.

Hard Lockout Error Code

Code	Error Condition	Correcting Error Condition
E- 25	High Temperature Limit, Supply Temperature rate of increase	<ul style="list-style-type: none"> - Check and verify 120V at the 120V terminal strip between terminals 4 and 5 inside the boiler enclosure. Check circulator wire harness and replace if needed, if voltage is measured at the control module. • Verify pump is properly sized for the flow rate required based on the head loss of the system. Reference the installation manual for pump curves and boiler pressure drops. Consult the circulator manufacturer for additional pump curve data or for assistance in sizing a circulator properly.
E- 28	Blower Assembly	<p>This error will occur if during the ignition sequence the blower does not start. The boiler display will indicate a status code of 5 during the ignition sequence for 4 minutes before locking out.</p> <ul style="list-style-type: none"> • Disconnect the connector at the blower. Restart the boiler sequence and check for 35Vdc at the connector between the black and white wires (pin 1 & 5). <ul style="list-style-type: none"> - If 35Vdc is not present at the connector, inspect the wiring harness and replace if necessary. Replace the control module if wire harness replacement does not resolve the problem. - If 35Vdc is present at the connector, reconnect the wire harness to the blower and ensure a secure connection. Replace the blower assembly if problem is not resolved.
E- 29	Blower Assembly	<p>The control module is detecting the blower in operation when it should not be.</p> <ul style="list-style-type: none"> • Check and verify the wiring from the blower to the control module is correct as shown in the appliance wiring schematic, page 22. <ul style="list-style-type: none"> - Replace the wiring harness from the control module to the blower. Replace the blower if the replacement of the wiring harness does not resolve the problem. Replace control module if blower replacement does not resolve the problem.
E- 31	Boiler Supply Temperature Sensor	<p>The control module detects a short or jumped out condition of the boiler supply (outlet) temperature sensor.</p> <ul style="list-style-type: none"> • Inspect the boiler supply temperature sensor and wiring, ensure it is secure and in good condition, replace as needed. <ul style="list-style-type: none"> - Replace the sensor and wiring if problem persists.
E- 32	Boiler Return Temperature Sensor	<p>The control module detects a short or jumped out condition of the boiler return (inlet) temperature sensor.</p> <ul style="list-style-type: none"> • Inspect the boiler return temperature sensor and wiring, ensure it is secure and in good condition, replace as needed. <ul style="list-style-type: none"> - Replace the sensor and wiring if problem persists.
E- 35	Flue Temperature Sensor	<p>The control module detects a short or jumped out condition of flue temperature sensor.</p> <ul style="list-style-type: none"> • Inspect the flue temperature sensor and wiring, ensure it is secure and in good condition. <ul style="list-style-type: none"> - Replace the sensor and wiring if problem persists.
E- 36	Boiler Supply Temperature Sensor	<p>The control module detects the boiler supply (outlet) temperature sensor as an open circuit.</p> <ul style="list-style-type: none"> • Inspect the boiler supply temperature sensor and wiring, ensure it is secure and in good condition, replace as needed. <ul style="list-style-type: none"> - Replace the sensor and wiring if problem persists.

Hard Lockout Error Code

Code	Error Condition	Correcting Error Condition
E- 37	Boiler Return Temperature sensor	<p>The control module detects the boiler return (inlet) temperature sensor as an open circuit.</p> <ul style="list-style-type: none"> • Inspect the boiler return temperature sensor and wiring, ensure it is secure and in good condition, replace as needed. <ul style="list-style-type: none"> - Replace the sensor and wiring if problem persists.
E- 40	Flue Temperature Sensor	<p>The control module detects the flue temperature sensor as “open”, which is typically an improper or missing connection at the sensor.</p> <ul style="list-style-type: none"> • Inspect the flue temperature sensor and wiring, ensure it is secure and in good condition. <ul style="list-style-type: none"> - Replace the sensor if problem persists.
E- 44	Internal Failure	<p>Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.</p>
E- 52	Flue Temperature Sensor	<p>The control module detects the flue temperature exceeding the 250°F limitation of the boiler.</p> <ul style="list-style-type: none"> • This is an indication the heat exchanger flue ways may need cleaning. Reference the Maintenance section of the installation manual for procedures on cleaning the flue side of the heat exchanger. • Isolate the boiler from the boiler system piping and drain the boiler heat exchanger. Flush the boiler heat exchanger several times, checking the discharge water for signs of scale or sediment. • Inspect the flue temperature sensor and wiring, ensure it is secure and in good condition, replace as needed. <ul style="list-style-type: none"> - Replace the sensor and wiring if problem persists.
E- 60	Internal Failure	<p>Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.</p>
E- 61	Internal Failure	<p>Reset the boiler control module and retry ignition sequence and boiler operation. If problem continues, replace the control module.</p>
E- 65	Blower Assembly	<p>The control module does not detect proper blower operation during a call for heat.</p> <ul style="list-style-type: none"> • Disconnect the 35V dc connector at the blower. Restart the boiler sequence and check for 35Vdc at the connector between the black and white wires (pin 1 & 5). <ul style="list-style-type: none"> - If 35Vdc is present at the connector, reconnect the wire harness to the blower and ensure a secure connection. Replace the blower assembly if problem is not resolved. - If 35Vdc is not present at the connector, inspect the wiring harness. Replace the control module if the wire harness inspection does not resolve the problem.

Combustion Test / Settings

WARNING

The installation and startup of the PRESTIGE should be performed by a qualified installer / service technician. The startup procedures should include a complete combustion test. The complete combustion test must also be performed after any adjustments to the factory settings on the burner. Failure to comply with these requirements can result in severe personal injury, death or substantial property damage.

Combustion Test Guidelines

- The combustion test should be conducted using an electronic combustion analyzer or at a minimum a “Fyrite” type CO2 analyzer.
- The combustion test sample can be taken from the test port located on the vent adapter of the PRESTIGE.
- Ensure the vent and combustion air piping are completely installed prior to startup and conducting a combustion test.
- The combustion test should be conducted, at a minimum, when the unit is at high fire input.

Combustion Parameters

	Natural Gas All Models	Propane All Models	Propane Solo 399 Only
O2 Min	2.30%	2.70%	3.70%
O2 Max.	5.30%	4.70%	5.20%
CO2 Min	8.80%	10.70%	10.00%
CO2 Max	10.50%	12.00%	11.00%
CO Max	100 ppm	100 ppm	100 ppm

Gas Valve Orifices

Model	Orifice Size Natural Gas	Orifice Size Propane Gas
Solo 60	0.204" (5.2 mm)	0.120" (3.1 mm)
Solo 110	None required	0.204" (5.2 mm)
Excellence 110	None Required	0.204" (5.2 mm)
Solo 175	None Required	0.221" (5.6 mm)
Solo 250	None Required	0.250" (6.3 mm)
Solo 399	0.399" (8.6 mm)	0.264" (6.7 mm)

Combustion Test / Settings

Combustion Adjustment

WARNING

To perform the following procedure it is essential the service technician reads and follows the procedures closely. After any adjustments are completed it is essential to perform a combustion check before proceeding with further steps. Failure to comply with these procedures can result in personal injury, death or substantial property damage.

If the O₂ level measured during the combustion test is below 2.3% for natural or 2.7% for propane:

OR

If the CO₂ level measured during the combustion test is above 10.5% for natural or 12.0% for propane:

Adjust the gas valve throttle screw, a brass screw within a sleeve located on the upper portion of the venturi as follows:

1. Ensure the PRESTIGE is OFF and no “calls for heat” are initiated.
2. Using a flat head screwdriver, turn the throttle screw clockwise (inward) a 1/4 of a full turn. It is important to note the initial start point of the screw prior to any adjustments.
3. Place the PRESTIGE back into service and conduct a combustion test.
4. If necessary, repeat the adjustment steps until the desired combustion level is met. NEVER adjust the throttle screw more than a full turn from its initial start point.

WARNING

Adjusting the throttle screw clockwise (inward) decreases the volume of gas injected into the burner. Adjustments beyond 1 full turn clockwise will greatly affect the operation of the burner and result in unstable combustion conditions.

WARNING

DO NOT adjust the throttle screw counter-clockwise beyond the initial factory set point without the use of proper equipment (manometer, combustion analyzer..) and/or the consultation with the Tech Services at Triangle Tube. Adjustments counter-clockwise beyond the factory set point will increase the volume of gas injected into the burner, resulting in possible unstable combustion conditions and potential dangerous levels of CO.

NTC Sensor Resistance Curve

Temperature (°F)	Temperature (°C)	NTC (kOhm)
-22	-30	171.70
-4	-20	98.82
14	-10	58.82
32	0	36.10
50	10	22.79
68	20	14.77
78	25	12.00
86	30	9.81
104	40	6.65
122	50	4.61
140	60	3.25
158	70	2.34
176	80	1.71
194	90	1.27
212	100	0.95

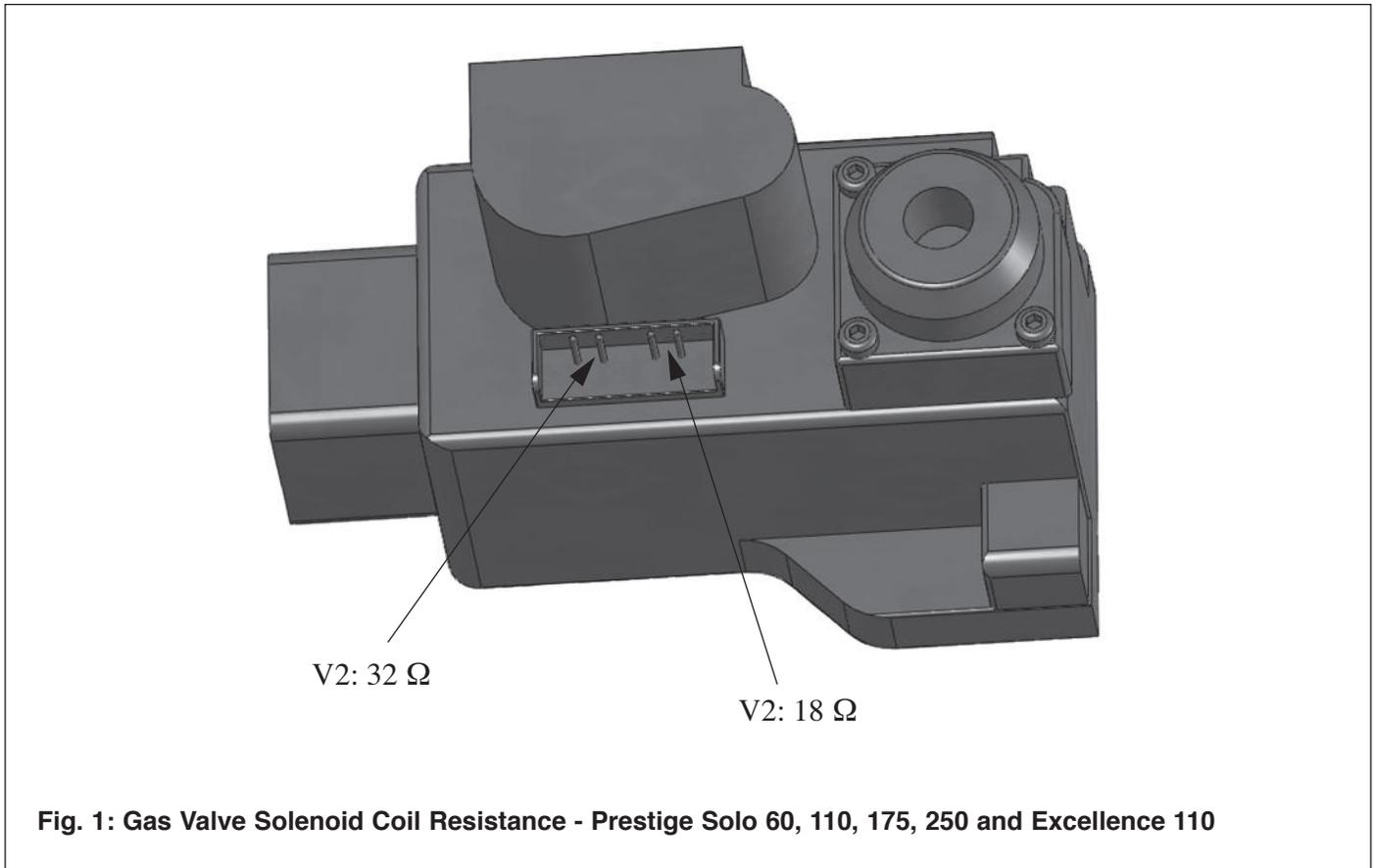
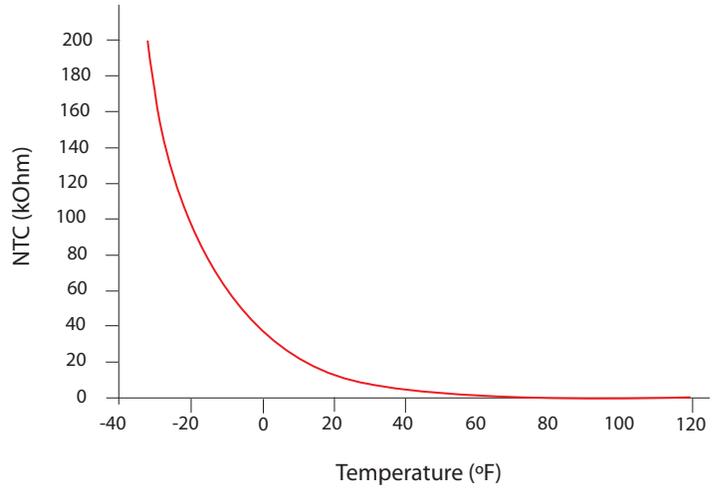
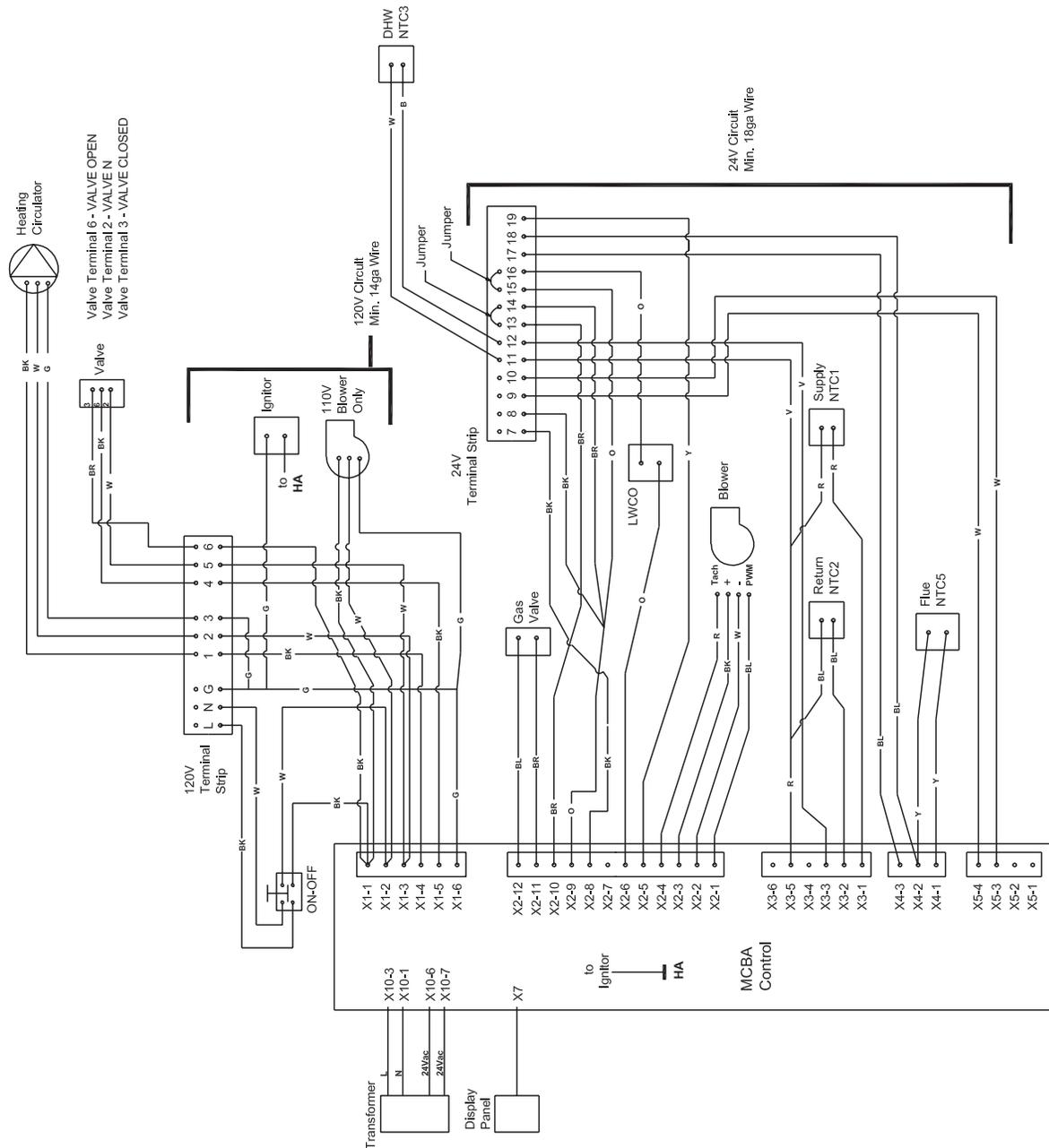


Fig. 1: Gas Valve Solenoid Coil Resistance - Prestige Solo 60, 110, 175, 250 and Excellence 110



- Wire Color Code Key**
- BK - Black
 - W - White
 - G - Green
 - BL - Blue
 - R - Red
 - O - Orange
 - V - Violet
 - Y - Yellow
 - BR - Brown

- 120V Wire Terminal Key**
- L - Incoming Supply L
 - N - Incoming Supply N
 - G - Incoming Supply G
 - 1 - Circulator L
 - 2 - Circulator N
 - 3 - Circulator G
 - 4 - Valve CH
 - 5 - Valve N
 - 6 - Valve DHW

- 24V Wire Terminal Key**
- 7 - Thermostat (T-T)
 - 8 - Thermostat (T-T)
 - 9 - Outdoor Sensor
 - 10 - Outdoor Sensor
 - 11 - DHW Thermostat
 - 12 - DHW Thermostat
 - 13 - External Limit - Manual Reset
 - 14 - External Limit - Manual Reset
 - 15 - External Limit - Auto Reset
 - 16 - External Limit - Auto Reset
 - 17 - 0-10v External Input (+)
 - 18 - 0-10v External Input (-)
 - 19 - Flame Signal

Fig. 2: Prestige EXCELLENCE 110 Boiler Factory Wiring and Excellence Wiring Diagram

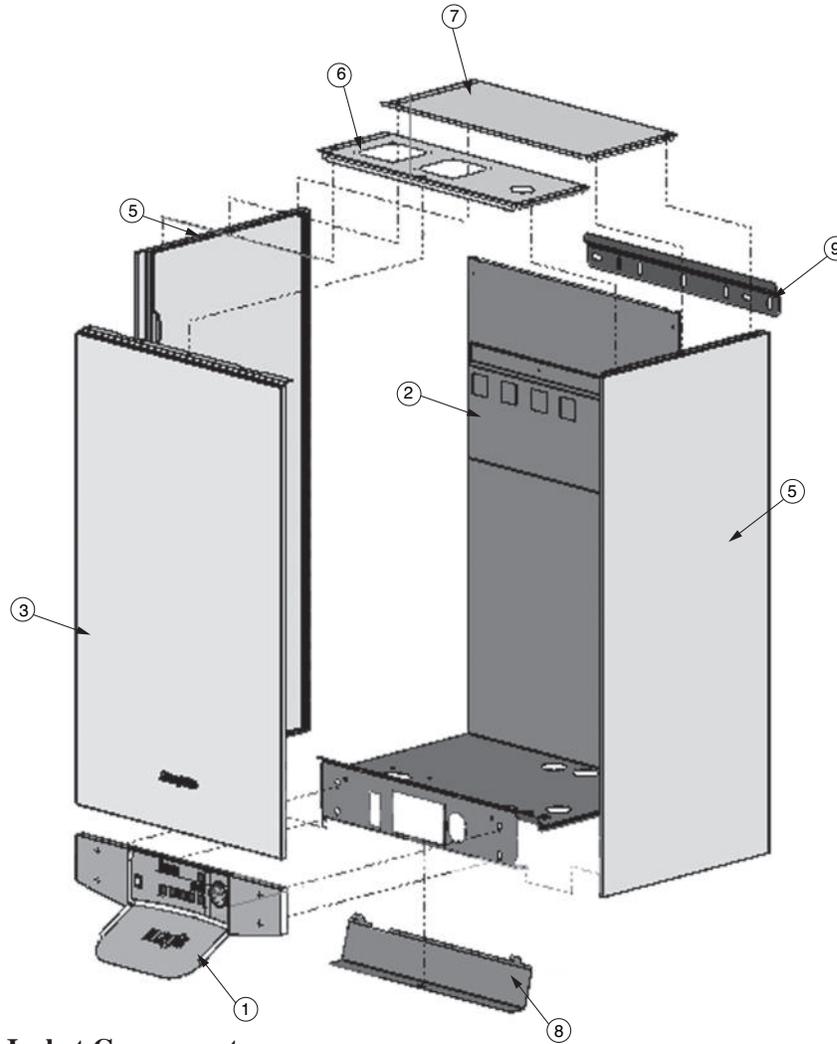


Fig. 4: PRESTIGE Jacket Components

Item	Part # PRESTIGE Solo 60/110	Part # PRESTIGE Solo 175/250	Part # PRESTIGE Solo 399	Description
1	PSCS01			Display/Control Panel
1A	--	--	PSCS02 (Left) PSCS03 (Right)	Display/Control Panel Extensions (Not Shown)
2	PSJKT01B	PSJKT03B	PSJKT04B	Base Panel
3	PSJKT01F		PSJKT02F	Front Jacket Panel
5	PSJKT02S		PSJKT03S	Side Jacket Panel (Left and Right)
6	PSJKT01T	PSJKT03T	PSJKT05T	Top Jacket Panel
7	PSJKT02T	PSJKT04T	PSJKT06T	Top Jacket Access Panel
8	PSJKT03		PSJKT04	Control Cover Panel
9	PSRKIT21			Wall Mounting Bracket with Hardware

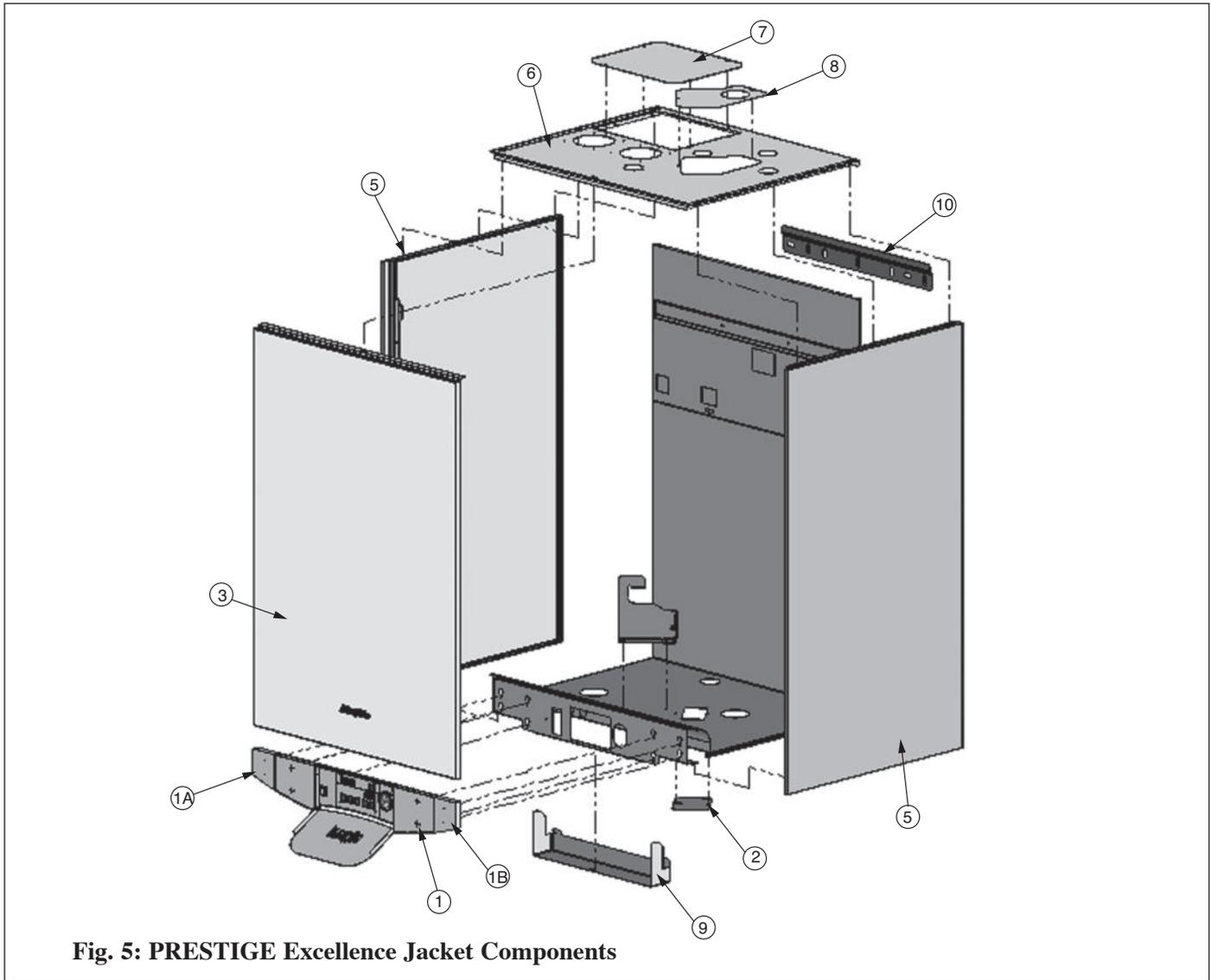


Fig. 5: PRESTIGE Excellence Jacket Components

Item	Part No.	Description
1	PSCS01	Display/Control Panel
1A / 1B	PSCS02 / PSCS03	Display/Control Panel Extension
2	PSJKT04B	Base Panel
3	PSJKT02F	Front Jacket Panel
5	PSJKT03S	Side Jacket Panel (Left and Right)
6	PEJKT01	Top Jacket Panel
7	PEJKT02	Top Jacket Panel - Blower Access
8	PEJKT03	Top Jacket Panel - IDWH Access
9	PSJKT04	Control Cover Panel
10	PSRKIT21	Wall Mounting Bracket with Hardware

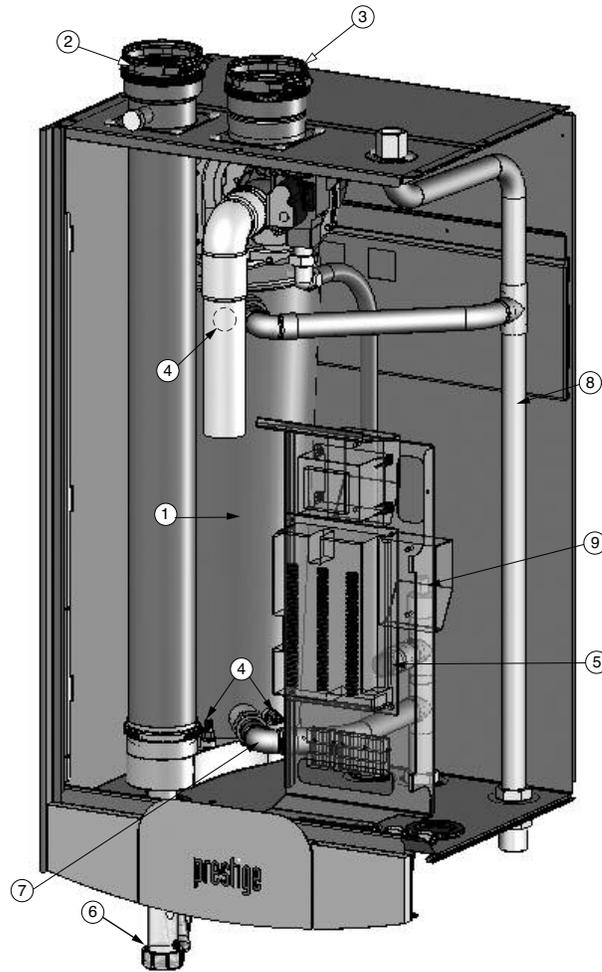


Fig. 6: PRESTIGE Solo 60 Internal Components

Item	Part No.	Description
1	PSRKIT01	Heat Exchanger Body
2	PSRKIT02	Vent Outlet Adapter
3	PSRKIT03	Combustion Air Inlet Adapter
4	PSRKIT04	NTC Sensor (NTC1, NTC2 and NTC5)
5	PGRKIT20	LWCO Pressure Device
6	PSRKIT05	Condensate Drain Assembly
7	PSRKIT06	Boiler Piping - Return Assembly
8	PSRKIT52	Boiler Piping - Supply Assembly
9	PSRKIT17	Pressure Gauge and Fitting

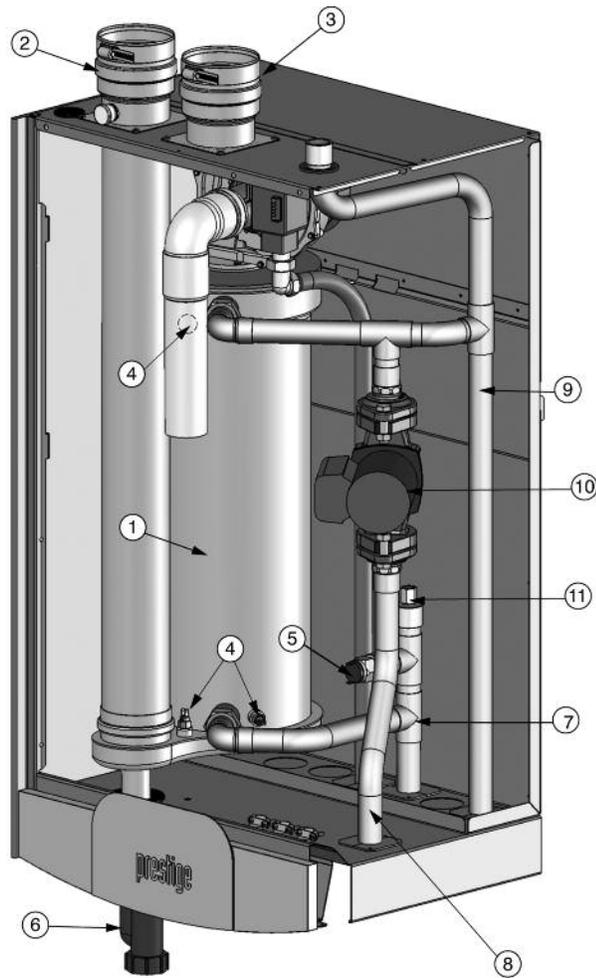


Fig. 7: Internal Components - PRESTIGE 110

Item	Part No. PRESTIGE 110	Description
1	PSRKIT01	Heat Exchanger Body
2	PSRKIT02	Vent Outlet Adapter
3	PSRKIT03	Combustion Air Inlet Adapter
4	PSRKIT04	NTC Sensor (NTC1, NTC2 and NTC5)
5	PGRKIT20	LWCO Pressure Device
6	PSRKIT05	Condensate Drain Assembly
7	PSRKIT06	Boiler Piping - Return Assembly
8	PSRKIT07	Boiler Piping - Supply Short Assembly
9	PSRKIT08	Boiler Piping - Supply Long Assembly
10	HMVCIR02	Circulator
11	PSRKIT17	Pressure Gauge and Fitting

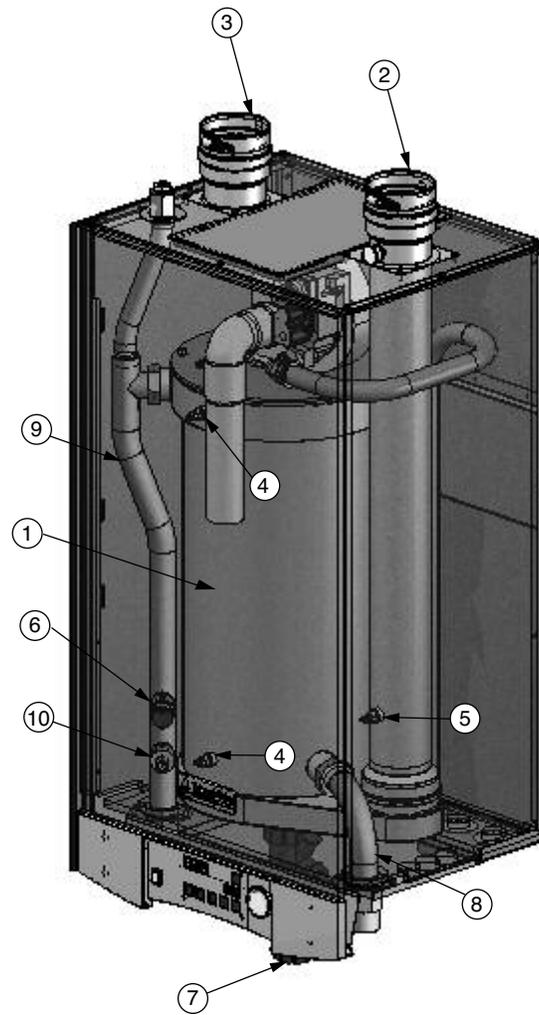


Fig. 8: Internal Components - PRESTIGE 175/250

Item	Part No. PRESTIGE Solo 175/250	Description
1	PSRKIT25	Heat Exchanger Body Solo 175
	PSRKIT26	Heat Exchanger Body Solo 250
2	PSRKIT27	Vent Outlet Adapter
3	PSRKIT03	Combustion Air Inlet Adapter
4	PSRKIT04	Supply & Return NTC Sensor (NTC1, NTC2)
5	PSRKIT34	Flue NTC Sensor (NTC5)
6	PGRKIT20	LWCO Pressure Device
7	PSRKIT05	Condensate Drain Assembly
8	PSRKIT28	Boiler Piping - Return Assembly
9	PSRKIT29	Boiler Piping - Supply
10	PSRKIT17	Pressure Gauge and Fitting

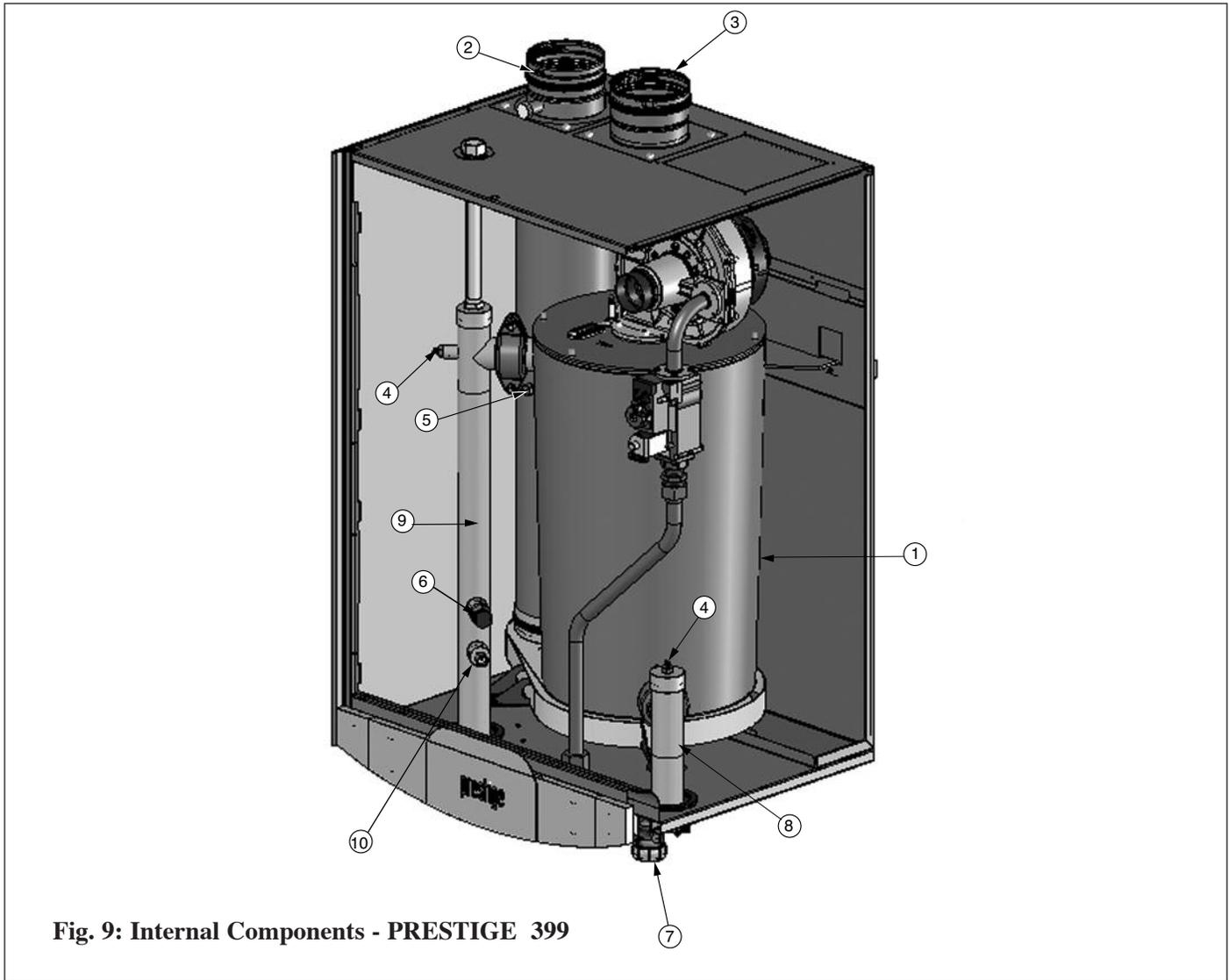


Fig. 9: Internal Components - PRESTIGE 399

Item	Part No. PRESTIGE 399	Description
1	PSRKIT44	Heat Exchanger Body
2	PSRKIT45	Vent Outlet Adapter
3	PSRKIT46	Combustion Air Inlet Adapter
4	PSRKIT47	Supply & Return NTC Sensor (NTC1, NTC2)
5	PSRKIT34	Flue NTC Sensor (NTC5)
6	PGRKIT20	LWCO Pressure Device
7	PSRKIT05	Condensate Drain Assembly
8	PSRKIT48	Boiler Piping - Return Assembly
9	PSRKIT49	Boiler Piping - Supply Assembly
10	PSRKIT17	Pressure Gauge and Fitting

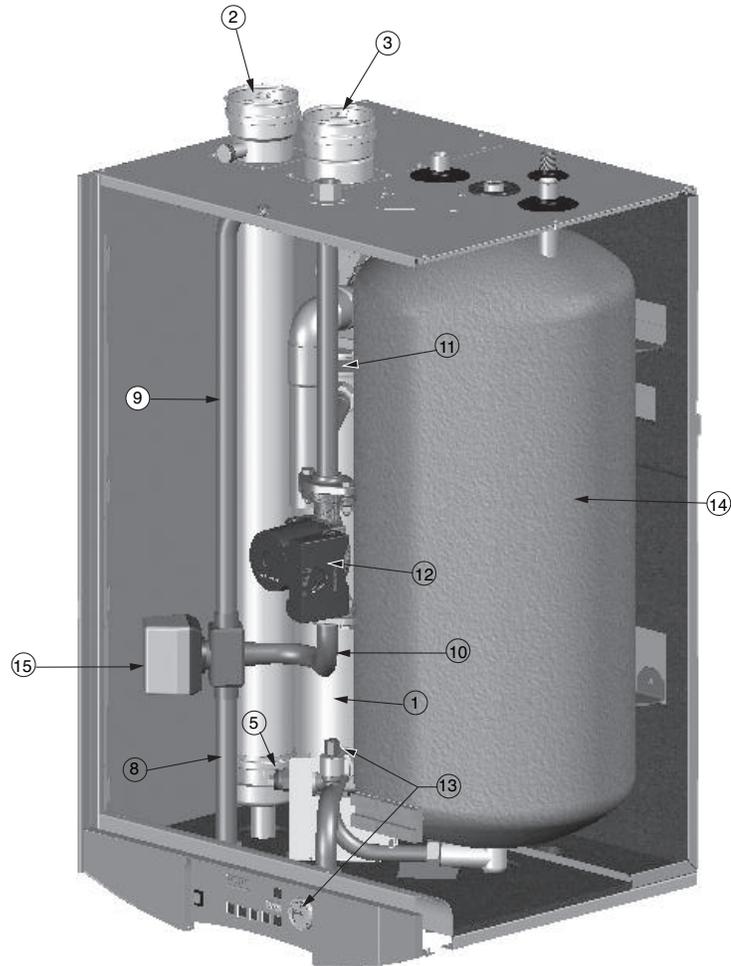


Fig. 10: PRESTIGE Excellence Internal Components

Item	Part No. EXCELLENCE	Description
1	PSRKIT01	Heat Exchanger Body
2	PSRKIT02	Vent Outlet Adapter
3	PSRKIT03	Combustion Air Inlet Adapter
4	PSRKIT04	NTC Sensor (NTC1, NTC2 and NTC5) (Not shown)
5	PGRKIT20	LWCO Pressure Device
6	PSRKIT05	Condensate Drain Assembly (Not shown)
7	PSRKIT51	Boiler Piping - Return Assembly
8	PSRKIT52	Boiler Piping - Supply Outlet Assembly
9	PSRKIT53	Boiler Piping - Supply Long Assembly
10	PSRKIT54	Boiler Piping - Supply Short Assembly
11	PSRKIT55	Boiler Piping - Relief Valve Assembly
12	HMVCIR02	Circulator
13	PSRKIT17	Pressure Gauge and Fitting
14	PSRKIT56	Excellence Water Heater Tank
15	PSRKIT57	Valve Actuator

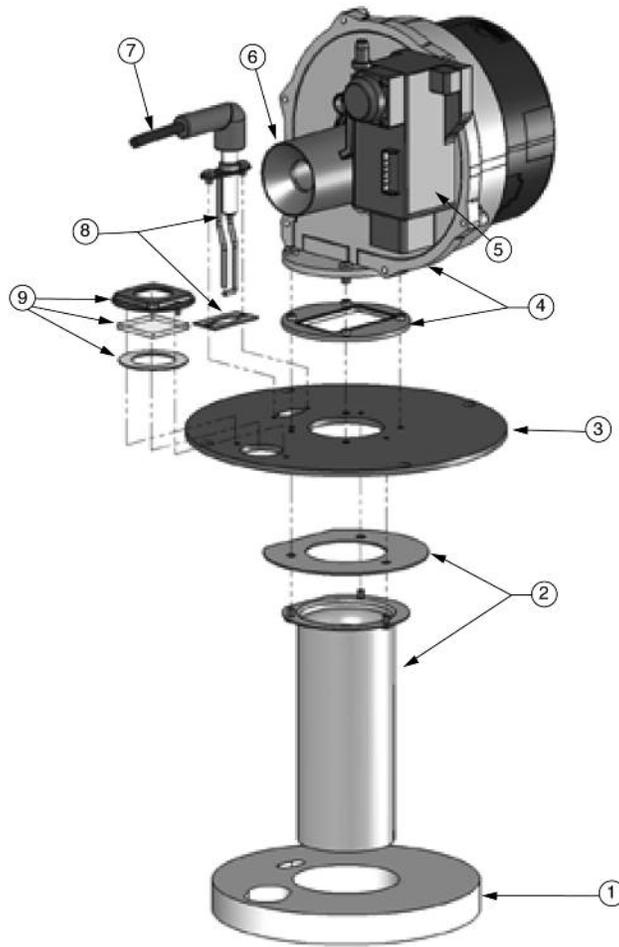


Fig. 11: Burner Components - PRESTIGE 60/110/175/250 and EXCELLENCE

Item	Part No.	Description
1	PSRKIT09	Combustion Chamber Insulation - PRESTIGE 60/110/EXCELLENCE
	PSRKIT30	Combustion Chamber Insulation - PRESTIGE 175/250
2	PSRKIT10	Burner Head with Gasket - Natural - PRESTIGE 110 and EXCELLENCE
	PSRKIT11	Burner Head with Gasket - Propane - PRESTIGE 110 and EXCELLENCE, PRESTIGE 60 (All Fuels)
	PSRKIT31	Burner Head with Gasket - PRESTIGE 175/250 (All Fuels)
3	PSRKIT12	Burner Plate - PRESTIGE 60/110/EXCELLENCE
	PSRKIT32	Burner Plate - PRESTIGE 175/250
4	PSRKIT13	Blower with Gasket - PRESTIGE 175/250
	PSRKIT55	Blower with Gasket - PRESTIGE 60/110/EXCELLENCE
5	PGRKIT01	Gas Valve
6	--	Venturi
7	PSRKIT14	Ignition Cable
8	PSRKIT15	Igniter with Gasket
9	PSRKIT16	Sight Glass Assembly (Glass, Gasket and Bracket)
10	--	Propane Orifice
11	--	Burner Plate Gasket - Not Shown
12	PGRKIT15	Gas Valve Rectifier Plug - Not Shown

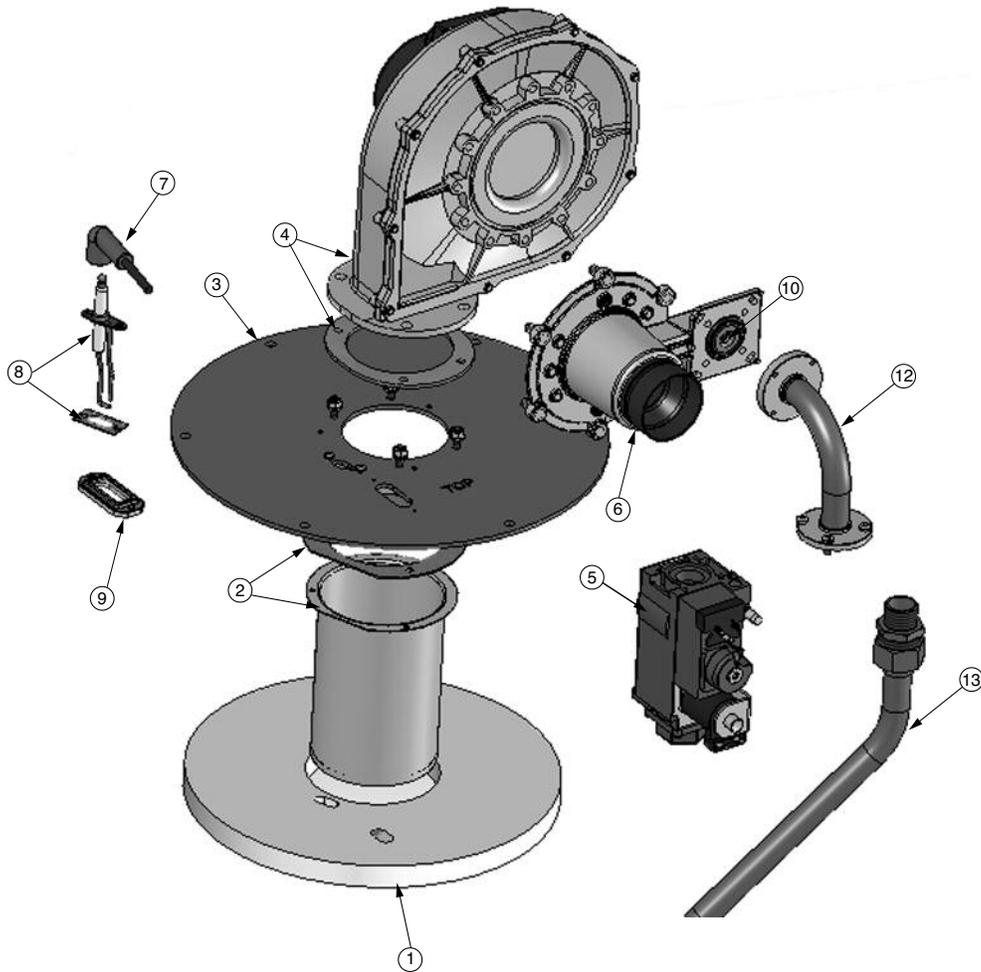


Fig. 12: Burner Components - PRESTIGE 399

Item	Part No. PRESTIGE 399	Description
1	PSRKIT37	Combustion Chamber Insulation
2	PSRKIT38	Burner Head with Gasket
3	PSRKIT39	Burner Plate
4	PSRKIT40	Blower with Gasket
5	PSRKIT41	Gas Valve
6	--	Venturi -
7	PSRKIT14	Ignition Cable
8	PSRKIT15	Igniter with Gasket
9	PSRKIT16	Sight Glass Assembly (Glass, Gasket and Bracket)
10	--	Gas Orifice
11	--	Burner Plate Gasket - Not Shown
12	PSRKIT42	Gas Valve Piping
13	PSRKIT43	Gas Supply Piping

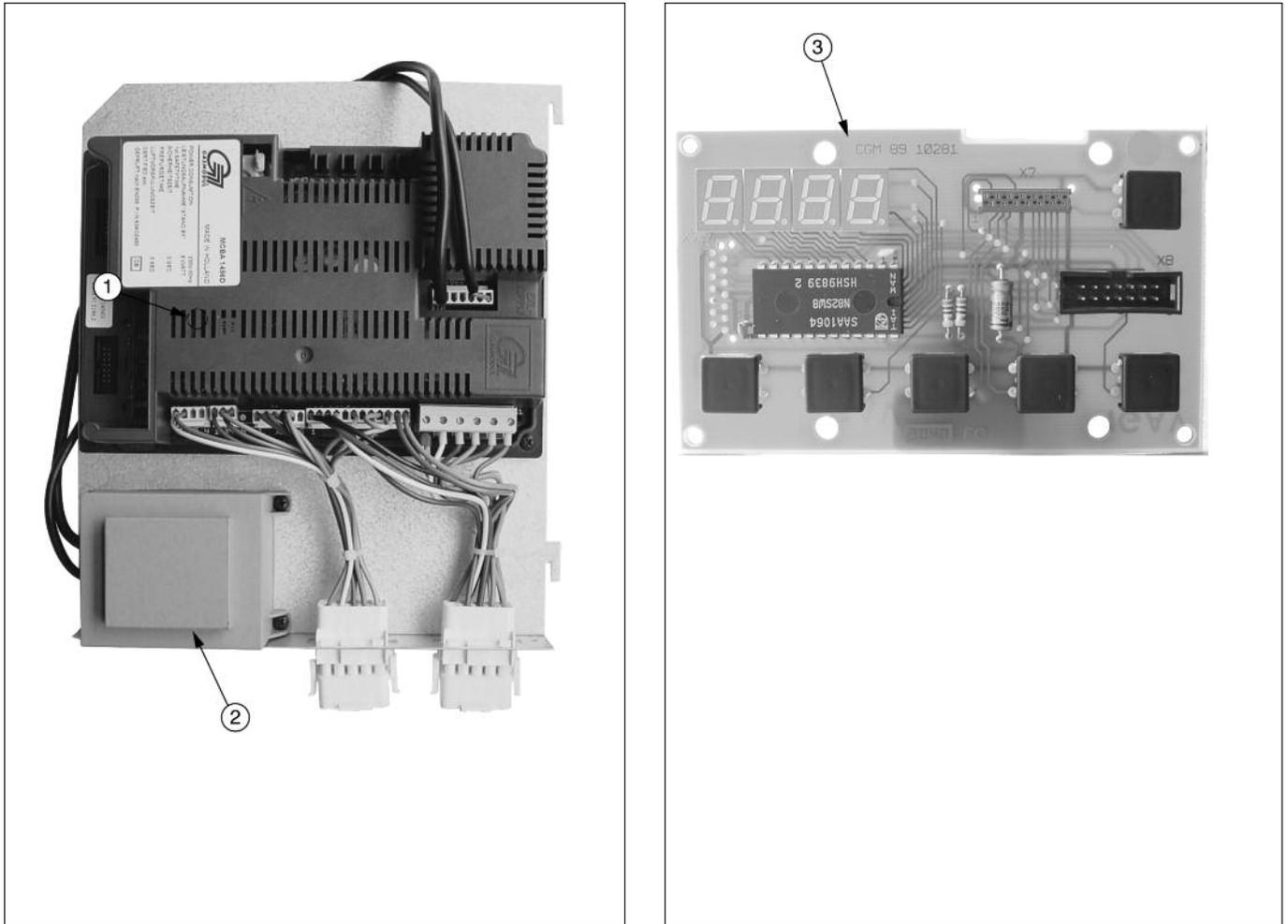


Fig. 13: Electronic Components - PRESTIGE

Item	Part No.	Description
1	PSRKIT50	PRESTIGE Control Module
2	PSRKIT19	Transformer with Surge Protection
3	PSRKIT20	PRESTIGE Control Module Display

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- Self cleaning/self descaling design

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